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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,706	03/03/2004	Andreas Beckmann	243761US0X	2911

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EXAMINER	
MANOHARAN, VIRGINIA	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/790,706	BECKMANN ET AL.	
	Examiner	Art Unit	
	Virginia Manoharan	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08/17/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The specification has not been checked to the extend necessary to determine the presence of all possible minor errors, e.g., typographical, grammar, idiomatic, syntax and etc. Applicants' cooperations are requested in correcting any errors of which applicants may become aware in the specification.

The abstract of the disclosure is objected to because the abstract is directed to subject matter that is different from the claimed invention. Correction is required. See MPEP § 608.01(b).

[Applicant is reminded of the proper content of an abstract of the disclosure. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure].

Claims 3-5, 7, 10-12 and 16-18 are objected to because of typographical errors such as "bara" in e.g., claim 3; and " lass" in claim 7.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a). The claims are indefinite and/or incomplete because an azeotrope is normally defined by its pressure and composition, but which parameters are not specified in the claims. (Both the weight percentages and the boiling point of a component of an azeotrope composition are subject to change when the composition is subjected to boilings at different pressures such that an azeotrope must be defined in terms of the compositional ranges of the components or in terms of the exact weight percentages of each component of the composition defined by a fixed boiling point at a specified pressure. The claims are therefore indefinite and/or incomplete without reciting the composition and pressure defining the azeotrope).

b). Claim 9 appears to be at odds with claim 1, steps (a) – (c), the claim from which it depends. [A dependent claim incorporates every features of the claim from which it depends and cannot change nor orient the limitation already recited in the independent claim]. See also claim 21.

c). It is unclear what constitute "the limit concentration of the distillation boundary line connecting an azeotrope of tert-butanol and water; and an azeotrope of 2-butanol and water.." within the context of the claimed invention as the limit concentration is not specified in the claims.

d). The claimed "the limit concentration of the distillation boundary line.." lacks antecedent support.

e). Claim 22 fails to further limit the subject matter of claim 1 because there are no additional process/method steps recited to add to the process of claim 1 with the recitation of only a product limitation. Also claim 22 is an improper dependent claim as the 2-butanol can be prepared by a process/method other than the process of claim 1.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/790,707 in view of Aron et al (5,985,100) or Rhiel et al (5,368,699).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter of the instant claims is covered in the claims of the above application, and vice versa. The only difference seen, is that the claims of the above co-pending application add tert-butanol to the mixture,whereas, the instant claims change the pressure in order to reduce the concentration of water such that the proportion by mass of water is less than the limit concentration of the distillation

boundary line connecting an azeotrope of tert-butanol and water; and an azeotrope of 2-butanol and water. However, the above difference is deemed not to constitute a patentable distinction inasmuch as controlling parameters such as pressure and feed material(s) added or removed in any distillation process necessarily affect the concentration of one stream one way or the other. As evidence see, e.g., col.2, lines 55-63 of Aron et al disclosing that:

> The composition of the product stream taken off by the top is thus continuously influenced by the prevailing temperatures and pressures and by the type of components present, for example it is important whether n-butanol or 2-butanol is present. Furthermore, the mode of operation of the column, for example the energy supply, influences the composition. The composition, which has virtually the azeotropic concentration, therefore cannot in general be exactly quantified.

and further see the abstract of Rhiel et al disclosing that:

> **A method of controlling concentrations in process technology operations—preferentially in thermal separation technology—using a non-linear, pressure-compensated temperature as control signal. The method can be used flexibly within a wide operating range.**

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-22 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-17 of copending Application No. 10/790,707. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that

copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: a process for separating 2-butanol from a mixture which comprises 2-butanol, tert-butanol and water, wherein the proportion by mass of water is greater than the concentration of the distillation boundary line connecting an azeotrope of tert-butanol and water and an azeotrope of 2-butanol and wate; and separating the mixture by distillation into a stream comprising 2-butanol and a stream comprising tert-butanol and water.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 22 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Berg (5,759,359) or Aron et al (5,985,100).

Obviously, 2-butanol is prepared by either of the above references since the above references also distill a mixture containing the same.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-21 are allowable **over the prior art of record.**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a). Berg '478 discloses the separation of 1-propanol from 2-butanol by azeotropic distillation.

b). Berg '435 discloses the separation of 2-methyl-1-propanol from 2-butanol by azeotropic distillation.

c). Osterburg discloses a process of adjusting the quantity of water in the purification process by distillation of a crude sec-butyl alcohol.

d). Kanauchi et al discloses a process for controlling the concentration, pressure and feeds in a distillation column.

e). Holler et al discloses an extractive distillation process and a required effective concentration of water.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 571-271-1450.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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